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Designing Bento Box Search Mechanism using VuFind

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Abstract

Modern library provides better information services with the help of new tools and techniques. Search mechanisms are very important in automated and digital library systems to perform the different tasks and activities. If the library and educational society has implemented and integrated the concepts of web scale discovery systems. So, the problems are (i) how to implement and configure the web scale search parameters ? (ii) how to integrate with different external databases ? Now, these are the major problems, and these can be solved using the bento box search parameter with the help of VuFind for providing a web scale library discovery system. It has explored the common access window where users can easily access the multiple resources from different databases such as (i) Library Catalogue (ii) Library Resources (iii) Website (iv) Authority Control. These are the major areas in this research paper. It is possible to create bento box search or combined search interface by applying different steps and processes with the help of VuFind discovery tool. Overall, most of the libraries and users are very much benefitted with the help of bento box search windows. Apart from these it has also given some extra and additional facilities such as grid, visual, and geographic search towards web scale discovery systems and services.

Keywords: Bento Box, Combined Search, VuFind, Sitemap, and Library Web Scale

Introduction

Library is an information and knowledge centre. Many users and students are involved in libraries for their study purposes. Library resources have been distributed among the readers in two ways : (i) manual and (ii) digital. But in modern educational learning society has changed the process of retrieving electronic resources between the learners and research communities. There are different techniques and tools available in the online environment for designing and developing the digital and automated library system. Web scale library discovery systems are one of the new and innovative concepts in modern library systems and services. Digital information can easily be handled with the help of open source tools and techniques. Bento box search is also known as combined search. It is a part of a web scale library discovery system. This is a very important concept in the modern digital library system for providing quick library services through bento box windows. So as to it is experimented and possible to implement in any library with the help of VuFind discovery tool. This is a practical concept and guidelines for the modern library system and services. It is possible to create a common and single window search interface for the library users regarding different facets, databases, and components. External database integration is possible by applying these procedures and steps. However, this has successfully integrated the four searching areas such as (i) Library catalogue including different search results as grid, visual, and geographic search (ii) Website (iii) Library resources, and (iv) Authority control. Library users have been accessed in a very easy way. Just put a keyword in a combined search box and it will retrieve the right digital documents from the said four databases. These are the major innovative search mechanisms in library discovery systems. Apart from these it has also shown and explored the cross collection search facilities from multiple software like Koha for integrated library system; DSpace for digital library system; EPrints for digital media archiving cluster; and Omeka for museum archiving system. Generally users are searching one

by one of any databases. This requires much time in favour of users. So, this is the problem of searching for the users. But now this problem has successfully solved with the help of VuFind, if the libraries and educational institutions are using this integrated framework.

Objectives

The main objectives of this research paper are briefly pointed as below:

(i) To explore the bento box and combined search integration with VuFind for increasing the web scale library discovery systems and services.
(ii) To show the process and steps for configuring the different files to easy implementation of this search window in different libraries.
(iii) To explore and overview of additional features in VuFind for multiple documents.
(iv) To access different databases from this integrated framework just by click on find option in VuFind.

Review of related works

This is the web scale library catalog interface using open source discovery tool VuFind for usability and initial testing results and evaluation (Ho & Horne-Popp, 2014). This paper is based on a case study of what is involved in implementing the VuFind discovery tool (Ho, Kelley & Garrison, 2009). It is possible to create the next-generation library catalogue interface with the help of VuFind on the basis of implementation as a discovery layer and online survey (Denton & Coysh, 2011). Compare the university students' preferences on the basis of searching the Koha OPAC with the help of VuFind discovery tool and here most of the students are very much interested towards discovery services (Yesmin & Ahmed, 2016). This is the case study of Villanova University's Falvey Library staff which shows the implementation process of VuFind for libraries (Houser, 2009). Authors and researchers were able to access and download from other libraries digital resources both metadata and fulltext with the help of consortial catalog as the default search for the literature search (Cox..et.al, 2014). It examines the utilization of different discovery tools in classrooms with the aim of trying to assess the attitude toward students (Allen, 2015). The author has shown and explored that faceted search can increase the next generation library catalogue to improve the better search results more efficiently and effectively (Niu, 2014). This paper is based on comparative study between the open source and closed source discovery tools to evaluate and select one comprehensive tool to create a next generation library discovery interface (Yang & Wagner, 2010). Application of web discovery services are an important concept in automated and digital library systems for creating a google like search box (Mandal, 2018). It is possible to display the bibliographic data in VuFind for increasing the web scale discovery services among the library users (Mandal, 2019). Six domain specific clusters are designing for the college libraries under the University of Burdwan with the help of VuFind, Koha, DSpace, EPrints, Greenstone, CMS and LCMS software packages (Mandal, 2016).

Here, most of the papers and authors are based on different factors regarding faceted search, library OPAC integration with VuFind, federated search mechanism, bibliographic data display, implementation of discovery tools, comparative study of discovery tools and services, domain specific cluster integration with CMS and LCMS. The gap is bento box or combined search on the basis of the said literature review. This bento box window is a very new and nascent concept and idea regarding the web scale library discovery systems and services. So, this research paper has tried to solve this gap with the help of VuFind and some configuration files for creating the common access interface regarding bento box or combined search box.

Methodology

Actually this is a practical concept but its implementation is a very easy task. Generating the bento

box or combined search window in VuFind is very important to easy retrieving of multiple resources from different databases regarding the items and collections. This is designing and developing on Ubuntu Operating System (i.e Ubuntu-20.04 LTS : Focal Fosa). VuFind 7.0 installed on this OS for creating and configuring the bento box and using Apache Tika for easy management of PDF files in web scale library discovery systems and services. The following steps are followed for creating the bento box search mechanism with the help of VuFind mentioned as below:

(i) Configure the combined.ini file under the local directory in VuFind.

(ii) Configure the searchbox.ini file under the Vufind local directory and on the combined handlers in the same file.

(iii) Combine handlers configure and add the Combined under target and type parameters in VuFind.

(iv) Configure the config.ini file under the vufind local directory for adding two components such as defaultModule and [SearchTabs].

(v) Configure the searches.ini file for increasing the additional facilities such as grid, visual, and geographic search. So, map based search is possible in VuFind on different countries and continents.

Combined search window

Combined search window is an advanced level parameter in web scale discovery services. It is possible to achieve and access in VuFind regarding different aspects such as link and integration. This is the combined search window (Figure-1) after successfully configuring the necessary parameters under the VuFind local directory. It is very user friendly to the users and library communities.

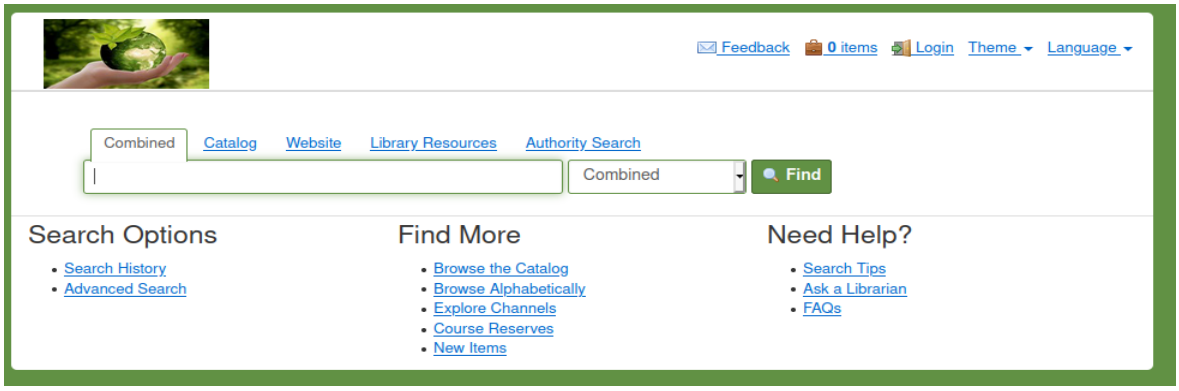

Figure – 1: Combined search window

Catalogue Interface

This is the catalog interface (Figure-2) in VuFind discovery services and it can be divided in major three facets such as browse by call number, browse by language, and browse by format. Apart from these geographic search and advanced search options are also available in this integrated domain specific framework.

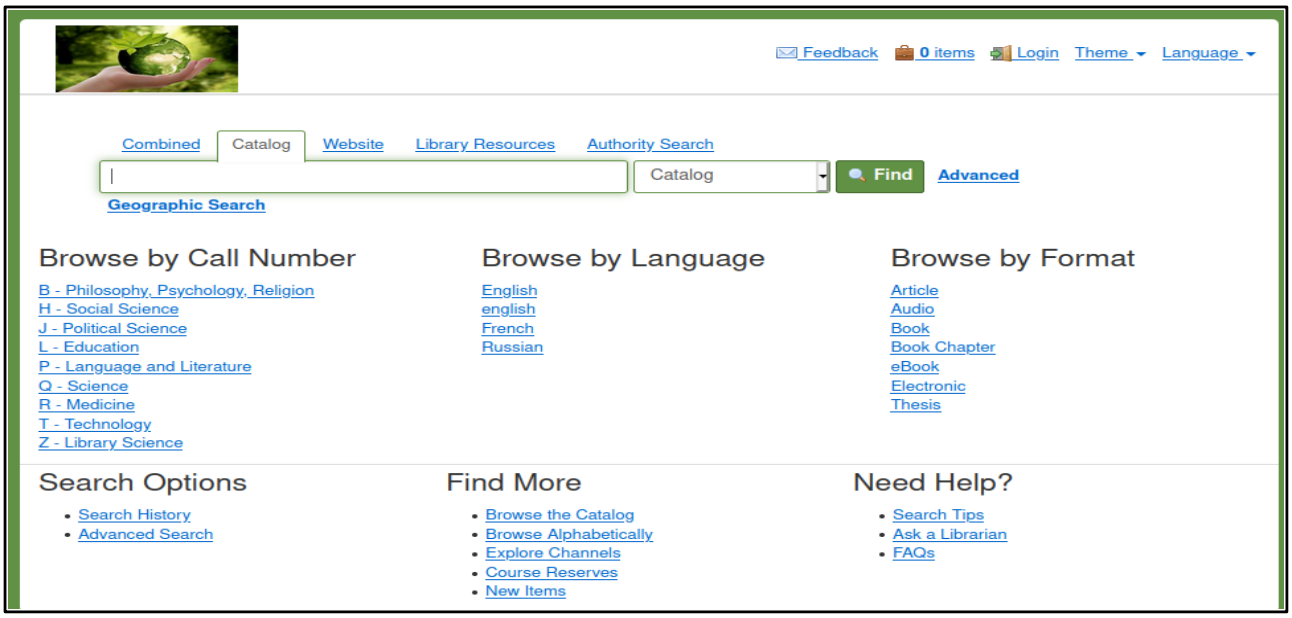

Figure-2: Library catalogue window

Bento Box Search Window

This is the bento box search window in VuFind. It is possible to access the metadata and fulltext resources from these interfaces. This is known as high level web scale discovery services and it has successfully integrated the four components such as library catalog, website, library resources, and authority control. This bento box will appear after clicking on the find button (Figure-3).

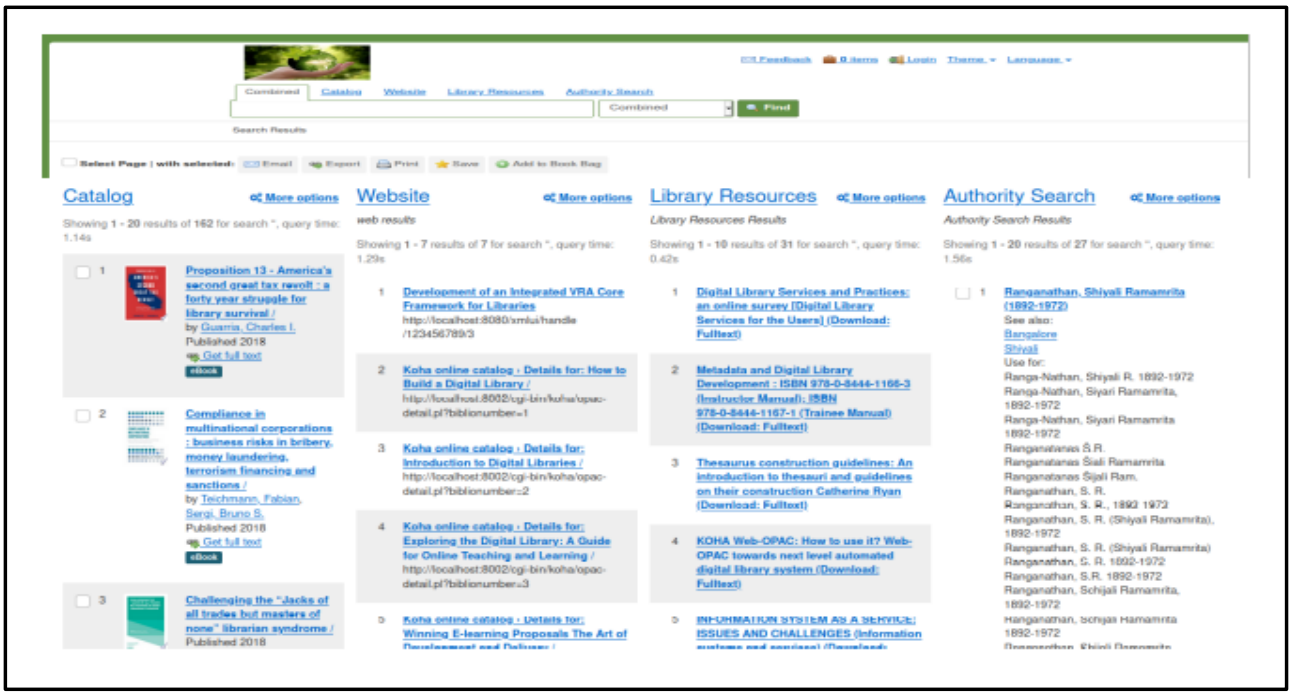

Figure-3: Bento box search window and results

Cross Collection Search Window

This is the catalogue and cross collection window search interface in VuFind (Figure-4). It shows different databases such as ebook, Koha, DSpace, EPrints, Omeka, and geographic map. It will appear after successfully harvesting metadata and fulltext with the help of harvesting patch and apache tika. This interface is very user friendly for increasing the library discovery system and services. It is

possible to search in different view modes such as lists, visual, and grid.

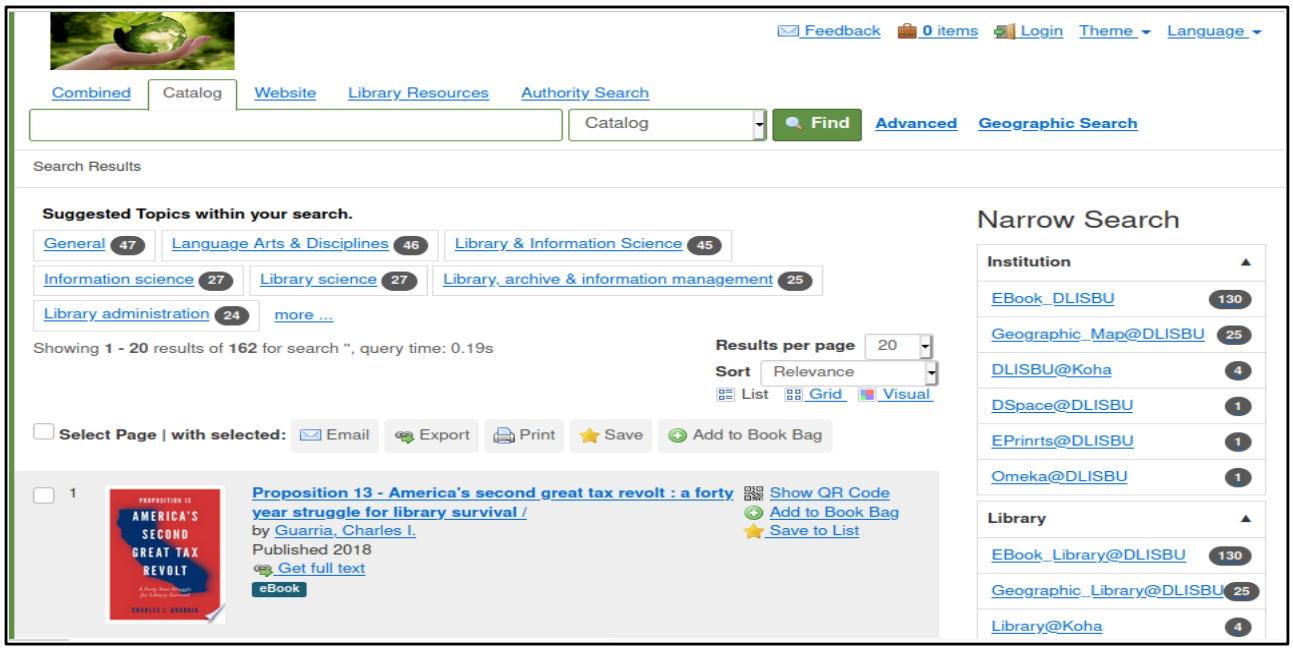

Figure-4: Cross collection search window

Website information

Website related information can be accessed with the help of sitemap (Figure-5). Narrower search terms are also displayed in the right navigation panel. It can increase the exhaustivity and specificity of relevant data. This concept is very new and nascent to the modern library discovery system. It can save the time of library users.

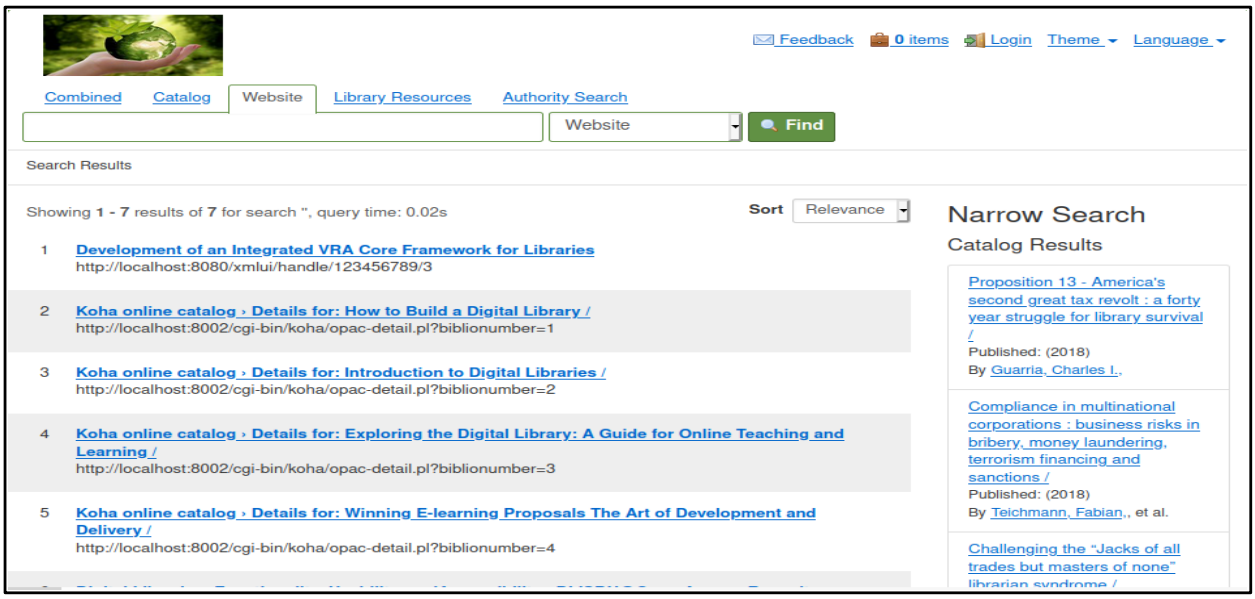

Figure-5: Website related information

Library Resources

Library resources have been accessed using the website script with the help of HTML concept and

ideas. Here display the title and search link of different file regarding the library resources. This is a very useful and fruitful window where all the users have been benefited from this search box (Figure-6).

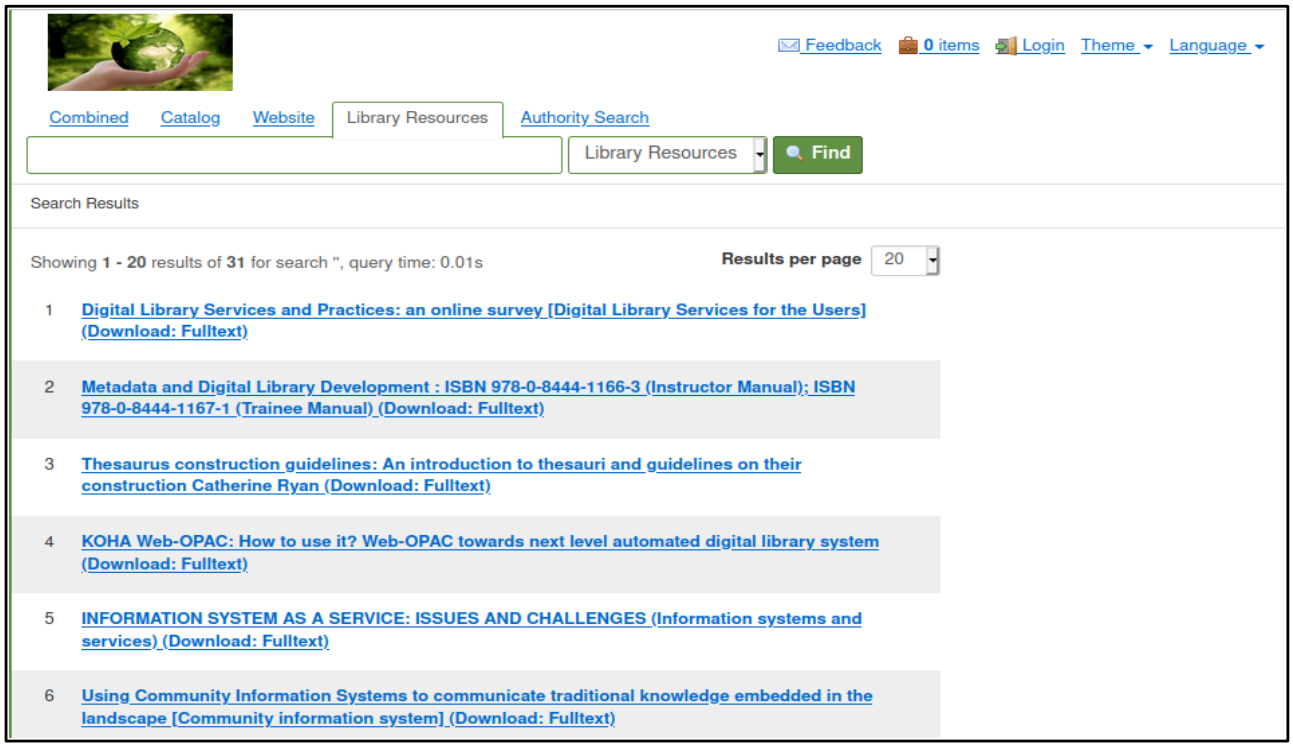

Figure-6: Library resources window

Authority search

Authority search is possible with the help of VuFind bento box. Name authority, subject authority, and title authority are easily generated for managing the different authority records. Integration with external databases like Koha and VIAF (Virtual international authority file) are also possible for searching the keywords regarding the person, geographic areas, topical terms, and other fields. So as to, this interface is very much helpful and attractive for the library users. In VuFind authority search can be retrieved in two ways such as (i) all the authorities are retrieved with the help of URL as http://localhost/vufind/Authority/Home and (ii) Bento box search that can be shown in the Figure-7. This is also known as combined search interface in VuFind.

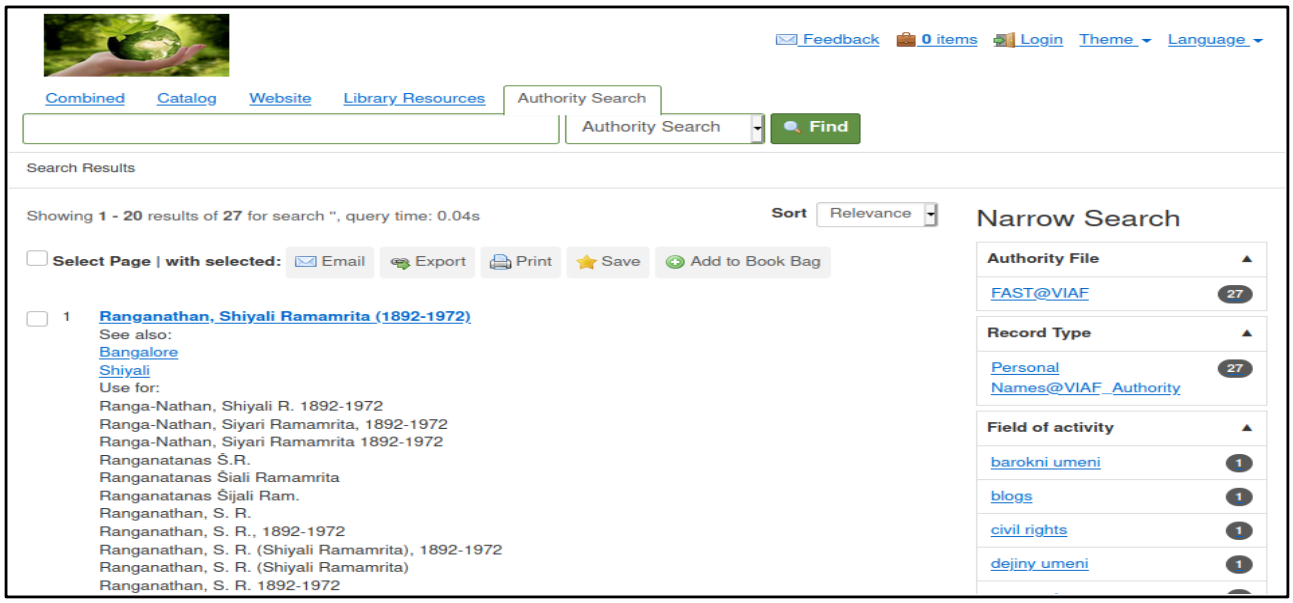

Figure-7: Authority search results

Additional facilities

It gives additional facilities regarding the web scale discovery services such as geographic search interface, grid search interface, and visual search interface. Geographic search interface is represented in Figure-8 for displaying the bibliographic items and full text file under the country with the help of World Map in VuFind.

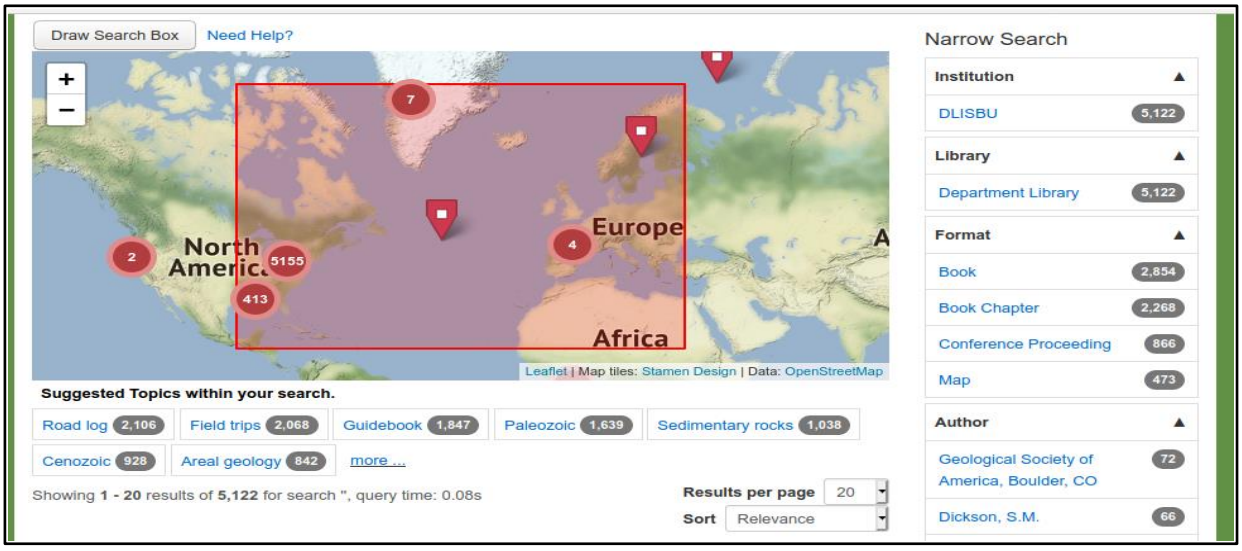

Figure-8 : Geographic search interface in VuFind Catalogue

Visual search interface in VuFind is represented in Figure-9 for all the items available in the databases. This is very user friendly and useful information.

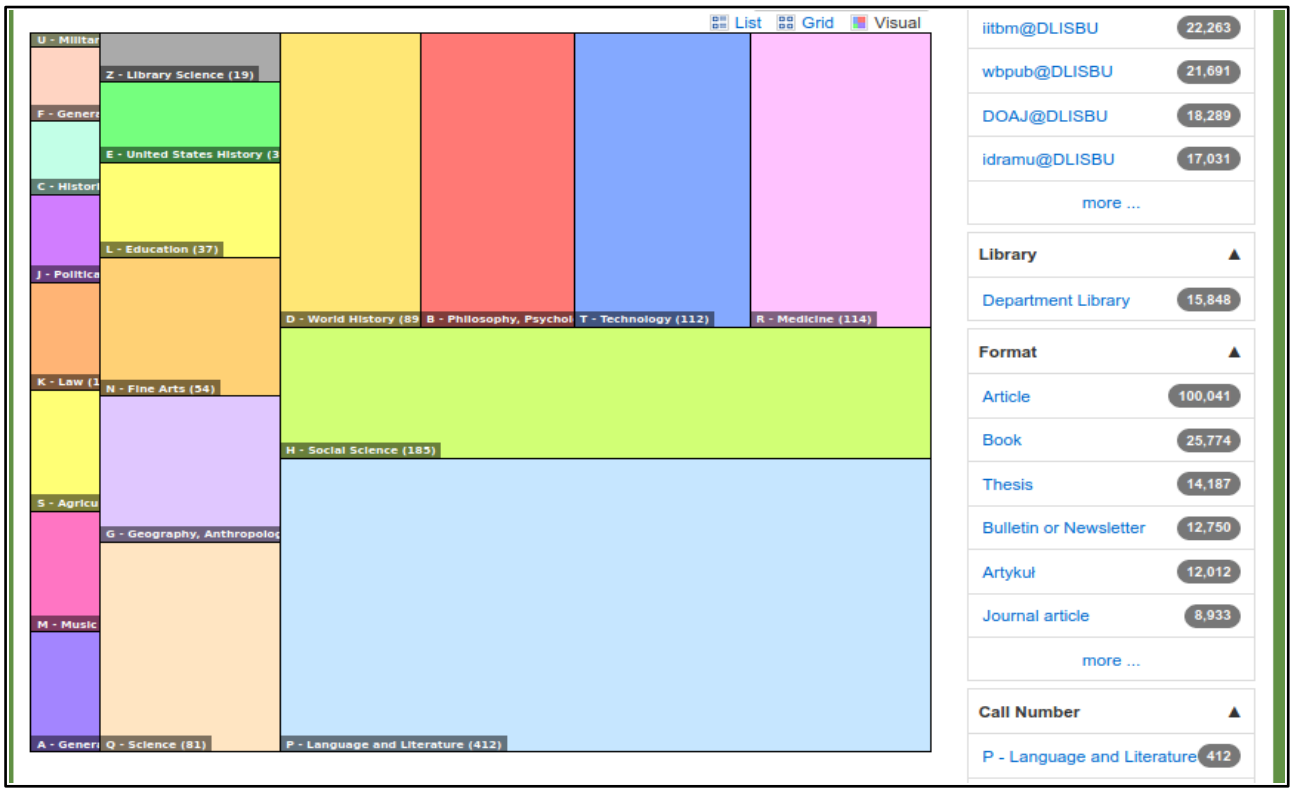

Figure-9: Visual search interface in VuFind Catalogue

VuFind grid search can be displayed in Figure-10 regarding the different items and digital resources.

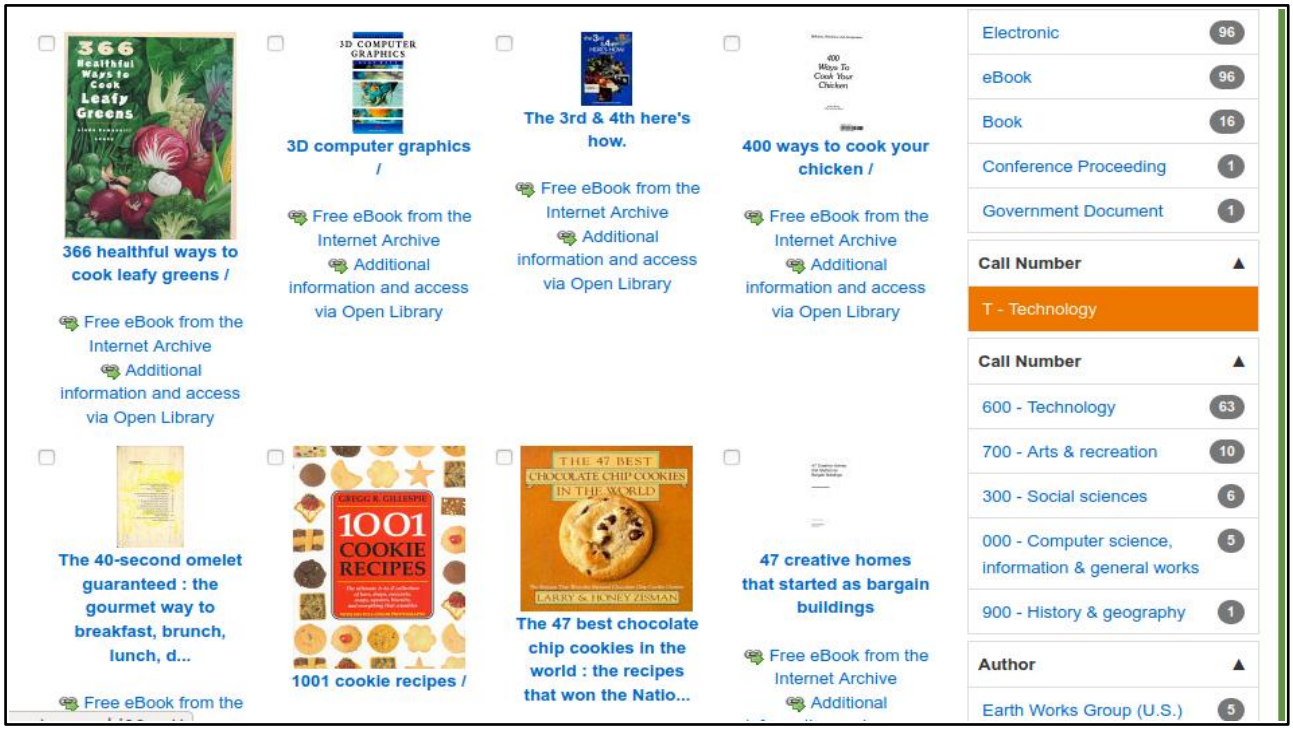

Figure-10: Grid search window in VuFind Catalogue

Conclusion

Web scale library discovery systems and services are very useful and informative in modern educational society. It is possible to provide these types of services with the help of VuFind in major four areas such as (i) *Library Catalogue*: Library catalogue is displayed within the bento box in the form of three column facets as browse by call number; browse by language; and browse by format. Apart from these it also provides some extra and additional facilities in the form of grid, visual, and geographic map. These are the very important and essential parameters in library discovery services towards users and researchers. (ii) *Library Website*: It is possible to access website related information with the help of bento box, technically its known as sitemap. This concept is very popular in discovery services which provides relevant resources among the users both in offline and online environment. So, it is clear that users have very much benefitted with the help of bento box sitemap script. (iii) *Library Resources*: Important library resources are also being accessed with the help of this integrated framework by applying the HTML script and code to link with different files as doc, mpeg, pdf or any file format also. (iv) *Authority Search*: It is possible to access authority search with the help of bento box apart from the bibliographic records. So this is the extra parameters in VuFind discovery tool which can easily display the authority records and its possible to link with other external authorities as VIAF (Virtual International Authority File). Koha authority records can easily be accessed and linked with bento box against in different parameters as name, subject, and title. So, overall discussions it's clear that the bento box or combined search window is very much conducive and effective towards present and future library users to increasing the betterment library and web scale discovery services for organizing and managing the large amount of library resources.

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